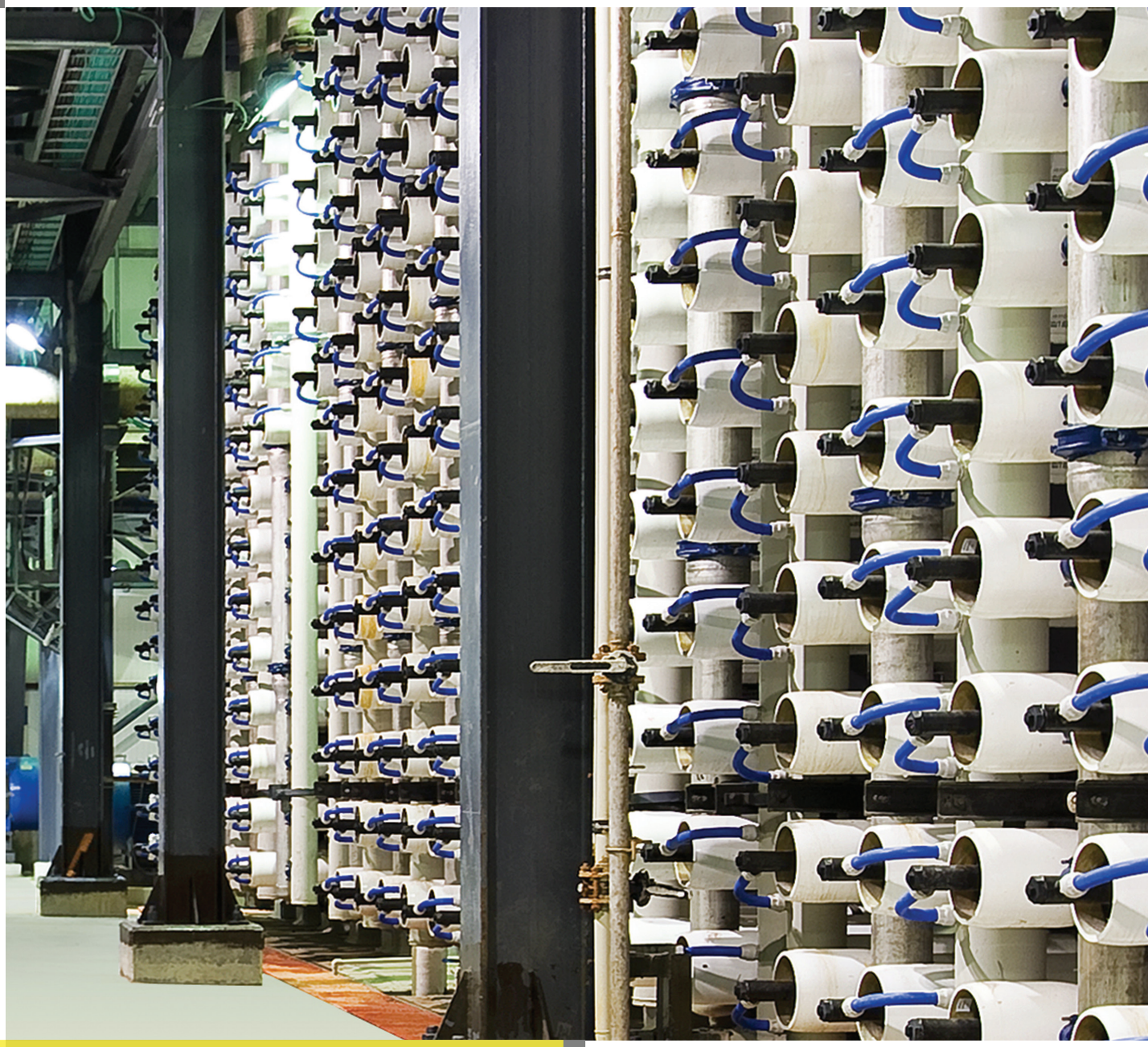
H+S Technologie



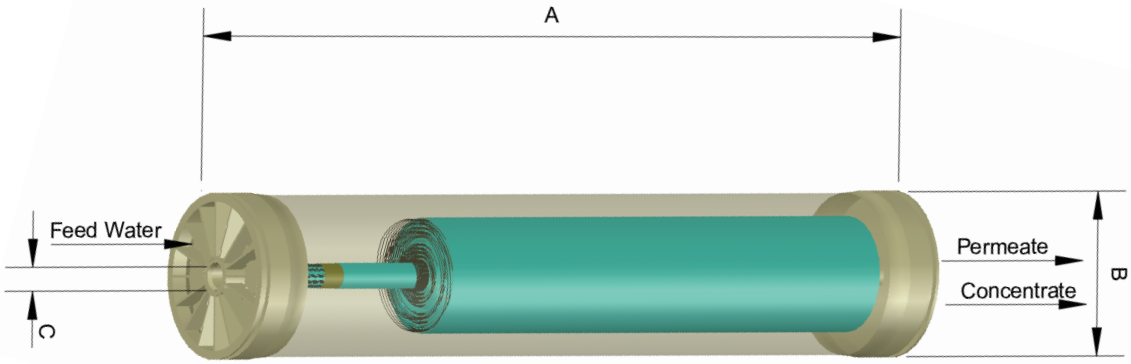
Seawater Reverse Osmosis & Brackish Water Membranes

Datasheet

H+S TECHNOLOGIE

BWRO-FR-400 Element

Fouling Resistant TFC Brackish Water RO Membrane Elements



Product Description

Product Type	Membrane Type	Configuration
Polyamide Thin-Film Composite	Brackish Water RO Membrane	Spiral Wound

Reverse osmosis membranes play a crucial role in wastewater treatment and desalination plants. H+S Technologie offers brackish water reverse osmosis membrane elements designed to remove salts and reject dissolved species present in high salinity brackish water and wastewater. For performance and longevity of the product, the membrane elements are fabricated with precision and designed for performance in order to reduce operational cost and capital cost.

H+S Technologie BWRO-FR-400 is ideal for challenging brackish water and wastewater operations that require high performance whilst maintaining the longevity of the element with fouling resistance.

Advantages and benefits to the BWRO-FR-400 membrane element include:

- High performance. High salt and boron rejection under high flow conditions. The membranes are designed to perform under stringent conditions and thus meet required specifications.
- Cost Efficient. The membranes are designed to be durable and are capable of maintaining high performance over the duration of the operation, reducing the frequency of product replacement.

Datasheet

BWRO-FR-400 Element

Specifications & Parameters

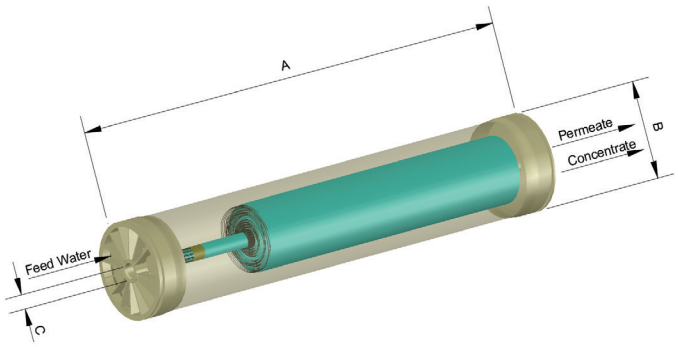
Model	Active Membrane Area (m2)	Salt Rejection (%)	Minimum Salt Rejection (%)	Spacer (mil)	Permeate Flow (m3/d)
BWRO-FR-400	37.2	99.5 - 99.7	99.4%	28	40

Nominal Dimensions

Dimensions provided are indicative and not accurate specifications.

Membrane elements are supplied with O-rings, brine seals and interconnector.

Model	BWRO-FR-400
A (mm)	1016
B (mm)	201
C (mm)	29



Standard Test Conditions

Solution	pH Value	Temperature (°C)	Operating Pressure (kPa)	Recovery (%)
2000 mg/L NaCl	7.5 - 8	25	1550	15

Operating & Design Limits

Maximum Operating Temperature	45	°C
Typical Operating Pressure	11 - 17	Bar
Maximum Operating Pressure	41	Bar
pH Range - Continuous Operation	4 - 11	
pH Range - Short Term Cleaning	2.5 - 11	
Maximum Element Differential Pressure	10	psi
Maximum Feed Silt Density Index (SDI)	5	SDI
Maximum Feed Turbidity	1	NTU
Maximum Free Chlorine Tolerance	<0.1	ppm

Operating Limits

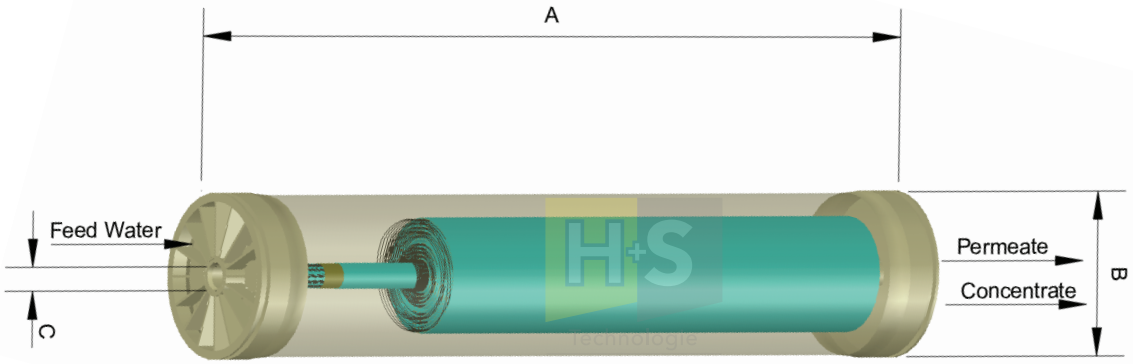
- Permeate pressure should not exceed feed or concentrate pressure by 0.35 bar.
- Maximum differential pressure for the element differs from the vessel. Maximum **element** differential pressure is 10psi.
- Maximum cleaning temperature is 45°C.
- Allowable pH range for continuous operation is 4-11 and for short term cleaning is 2.5-11. Exposure of the membrane to the extended pH range should be limited and kept to a maximum of 4 hours once per month.
- Recovery rate is subject to the application of the membrane and site. Under test conditions, a single element recovery is approximately **15%**.

Datasheet

H+S TECHNOLOGIE

BWRO-LP-400 Element

Low Pressure TFC Brackish Water RO Membrane Elements



Product Description

Product Type	Membrane Type	Configuration
Polyamide Thin-Film Composite	Brackish Water RO Membrane	Spiral Wound

Reverse osmosis membranes play a crucial role in wastewater treatment and desalination plants. H+S Technologie offers brackish water reverse osmosis membrane elements designed to remove salts and reject dissolved species present in high salinity brackish water and wastewater. For performance and longevity of the product, the membrane elements are fabricated with precision and designed for performance in order to reduce operational cost and capital cost.

H+S Technologie BWRO-LP-400 is ideal for challenging brackish water and wastewater operations that require low pressure, high performance whilst maintaining the longevity of the element.

Advantages and benefits to the BWRO-FR-400 membrane element include:

- High performance. High salt and boron rejection under high flow conditions. The membranes are designed to perform under stringent conditions and thus meet required specifications.
- Cost Efficient. The membranes are designed to be durable and are capable of maintaining high performance over the duration of the operation, reducing the frequency of product replacement.

Datasheet

BWRO-LP-400 Element

Specifications & Parameters

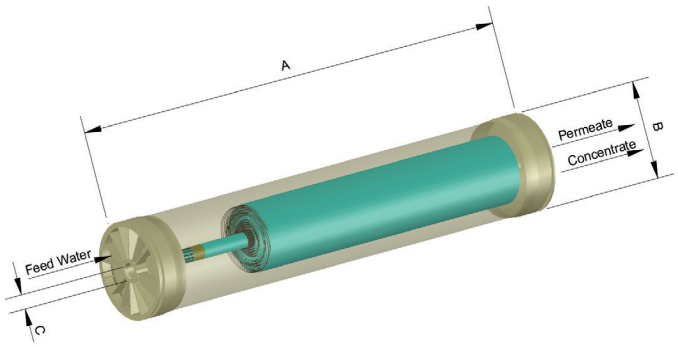
Model	Active Membrane Area (m2)	Salt Rejection (%)	Minimum Salt Rejection (%)v	Spacer (mil)	Permeate Flow (m3/d)
BWRO-LP-400	37.2	99.5 - 99.7%	99.4%	28	40

Nominal Dimensions

Dimensions provided are indicative and not accurate specifications.

Membrane elements are supplied with O-rings, brine seals and interconnector.

Model	BWRO-LP-400
A (mm)	1016
B (mm)	201
C (mm)	29



Standard Test Conditions

Solution	pH Value	Temperature (°C)	Operating Pressure (kPa)	Recovery (%)
2000 mg/L NaCl	7.5 - 8	25	1550	15

Operating & Design Limits

Maximum Operating Temperature	45	°C
Typical Operating Pressure	11 - 17	Bar
Maximum Operating Pressure	41	Bar
pH Range - Continuous Operation	4 - 11	
pH Range - Short Term Cleaning	2.5 - 11	
Maximum Element Differential Pressure	10	psi
Maximum Feed Silt Density Index (SDI)	5	SDI
Maximum Feed Turbidity	1	NTU
Maximum Free Chlorine Tolerance	<0.1	ppm

Operating Limits

- Permeate pressure should not exceed feed or concentrate pressure by 0.35 bar.
- Maximum differential pressure for the element differs from the vessel. Maximum **element** differential pressure is 10psi.
- Maximum cleaning temperature is 45°C.
- Allowable pH range for continuous operation is 4-11 and for short term cleaning is 2.5-11. Exposure of the membrane to the extended pH range should be limited and kept to a maximum of 4 hours once per month.
- Recovery rate is subject to the application of the membrane and site. Under test conditions, a single element recovery is approximately **15%**.

Datasheet

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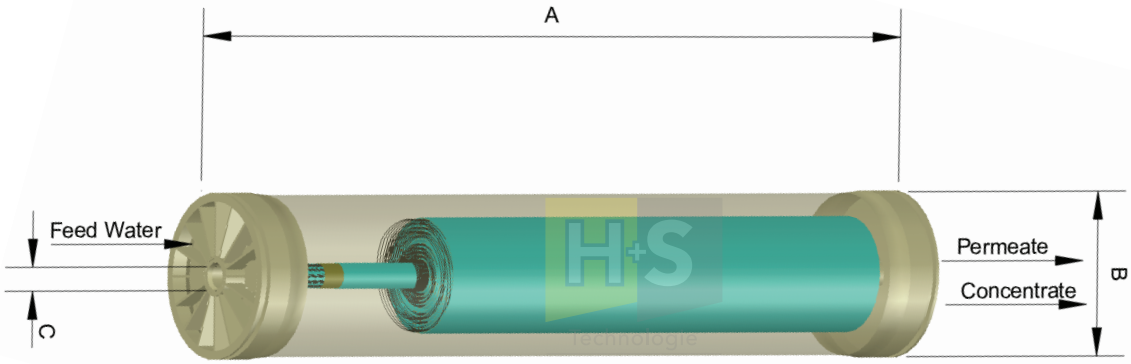
SWRO-HF-400 Element

High Flow TFC Seawater RO Membrane Elements



Product Description

Product Type	Membrane Type	Configuration
Polyamide Thin-Film Composite	Seawater RO Membrane	Spiral Wound

Reverse osmosis membranes play a crucial role in wastewater treatment and desalination plants. H+S Technologie offers seawater reverse osmosis membrane elements designed to remove salts and reject dissolved species present in water. For performance and longevity of the product, the membrane elements are fabricated with precision and designed for performance in order to reduce operational cost and capital cost.

H+S Technologie SWRO-HF-400 delivers consistent high flow rates whilst maintaining excellent salt rejection to meet requirments in seawater desalination applications.

Advantages and benefits to the SWRO-HF-400 membrane element include:

- High performance. High salt and boron rejection under high flow conditions. The membranes are designed to perform under stringent conditions and thus meet required specifications.

- Cost Efficient. The membranes are designed to be durable and are capable of maintaining high performance over the duration of the operation, reducing the frequency of product replacement.

Datasheet

SWRO-HF-400 Element

Specifications & Parameters

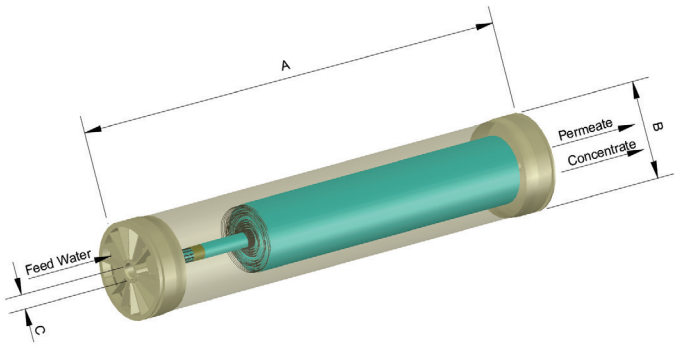
Model	Active Membrane Area (m2)	Salt Rejection (%)	Boron Rejection (%)	Spacer (mil)	Permeate Flow (m3/d)
SWRO-HF-400	37.2	99.7%	89	28	36

Nominal Dimensions

Dimensions provided are indicative and not accurate specifications.

Membrane elements are supplied with O-rings, brine seals and interconnector.

Model	SWRO-HF-400
A (mm)	1016
B (mm)	201
C (mm)	29



Standard Test Conditions

Solution	pH Value	Temperature (°C)	Operating Pressure (kPa)	Recovery (%)
32,000 mg/L NaCl	7.5 - 8	25	5500	8

Operating & Design Limits

Maximum Operating Temperature	45	°C
Typical Operating Pressure	56	Bar
Maximum Operating Pressure	70	Bar
pH Range - Continuous Operation	4 - 11	
pH Range - Short Term Cleaning	2.5 - 11	
Maximum Element Differential Pressure	10	psi
Maximum Feed Silt Density Index (SDI)	5	SDI
Maximum Feed Turbidity	1	NTU
Maximum Free Chlorine Tolerance	<0.1	ppm

Operating Limits

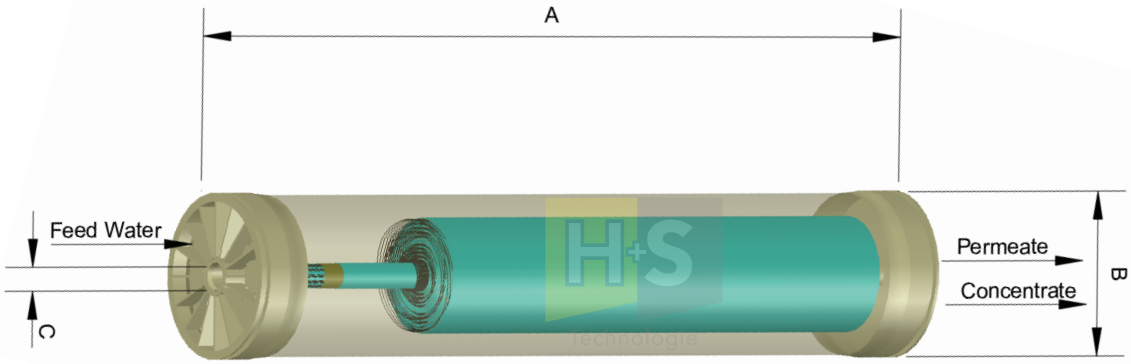
- Permeate pressure should not exceed feed or concentrate pressure by 0.35 bar.
- Maximum differential pressure for the element differs from the vessel. Maximum **element** differential pressure is 10psi.
- Maximum cleaning temperature is 45°C.
- Allowable pH range for continuous operation is 4-11 and for short term cleaning is 2.5-11. Exposure of the membrane to the extended pH range should be limited and kept to a maximum of 4 hours once per month.
- Recovery rate is subject to the application of the membrane and site. Under test conditions, a single element recovery is approximately **7%**.

Datasheet

H+S TECHNOLOGIE

SWRO-HR-400 Element

High Rejection TFC Seawater RO Membrane Elements



Product Description

Product Type	Membrane Type	Configuration
Polyamide Thin-Film Composite	Seawater RO Membrane	Spiral Wound

Reverse osmosis membranes play a crucial role in wastewater treatment and desalination plants. H+S Technologie offers seawater reverse osmosis membrane elements designed to remove salts and reject dissolved species present in water. For performance and longevity of the product, the membrane elements are fabricated with precision and designed for performance in order to reduce operational cost and capital cost.

H+S Technologie SWRO-HR-400 offer high rejection off high salt and boron rejection to meet requirments in seawater desalination applications.

Advantages and benefits to the SWRO-HR-400 membrane element include:

- High performance. High salt and boron rejection under high flow conditions. The membranes are designed to perform under stringent conditions and thus meet required specifications.
- Cost Efficient. The membranes are designed to be durable and are capable of maintaining high performance over the duration of the operation, reducing the frequency of product replacement.

Datasheet

SWRO-HR-400 Element

Specifications & Parameters

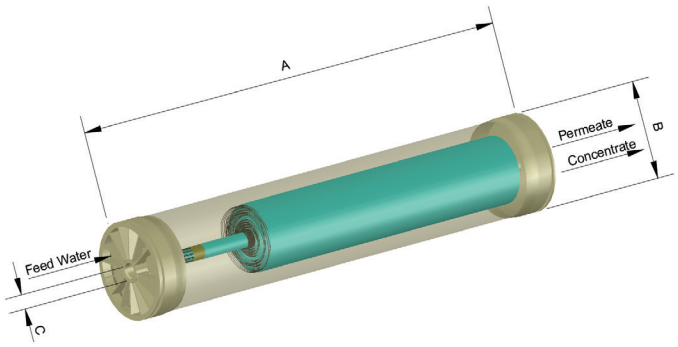
Model	Active Membrane Area (m2)	Salt Rejection (%)	Boron Rejection (%)	Spacer (mil)	Permeate Flow (m3/d)
SWRO-HR-400	37.2	99.75%	>90	28	27

Nominal Dimensions

Dimensions provided are indicative and not accurate specifications.

Membrane elements are supplied with O-rings, brine seals and interconnector.

Model	SWRO-HR-400
A (mm)	1016
B (mm)	201
C (mm)	29



Standard Test Conditions

Solution	pH Value	Temperature (°C)	Operating Pressure (kPa)	Recovery (%)
32,000 mg/L NaCl	7.5 - 8	25	5500	8

Operating & Design Limits

Maximum Operating Temperature	45	°C
Typical Operating Pressure	60	Bar
Maximum Operating Pressure	82	Bar
pH Range - Continuous Operation	4 - 11	
pH Range - Short Term Cleaning	2.5 - 11	
Maximum Element Differential Pressure	10	psi
Maximum Feed Silt Density Index (SDI)	5	SDI
Maximum Feed Turbidity	1	NTU
Maximum Free Chlorine Tolerance	<0.1	ppm

Operating Limits

- Permeate pressure should not exceed feed or concentrate pressure by 0.35 bar.
- Maximum differential pressure for the element differs from the vessel. Maximum **element** differential pressure is 10psi.
- Maximum cleaning temperature is 45°C.
- Allowable pH range for continuous operation is 4-11 and for short term cleaning is 2.5-11. Exposure of the membrane to the extended pH range should be limited and kept to a maximum of 4 hours once per month.
- Recovery rate is subject to the application of the membrane and site. Under test conditions, a single element recovery is approximately **7%**.

H+S Commitment To Quality and Excellence

Our goals are to achieve total customer satisfaction by delivering the greatest value to our customers at the most competitive cost. We focus on on-time delivery, customer-satisfying products, and services. We are committed to maintaining and constantly improving the quality of our products and services so that customer requirements are consistently met.

H+S Technologie

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